

Appln. No. 09/833,017
Amendment

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 - 22. (Canceled).

23. (Currently amended) The polypeptide of claim 24 comprising a *S.mutans* competence signal peptide having the amino acid sequence of SEQ ID NO:4.

24. (Currently amended) ~~A~~An isolated polypeptide comprising ~~all or part of an~~the amino acid sequence ~~in of~~ SEQ ID NO:2 or SEQ ID NO:4 and having *S.mutans* competence signal peptide activity.

25. (Currently amended) ~~A~~An isolated polypeptide ~~variant of SEQ ID NO:2 or SEQ ID NO: 4~~ having at least ~~30%~~ 40% amino acid sequence identity to SEQ ID NO:2 and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

26. (Currently amended) ~~The polypeptide variant of claim 25 which is recombinantly produced~~An isolated recombinant polypeptide comprising the amino acid sequence of SEQ ID NO: 2 or SEQ ID NO:4 which has *S.mutans* competence signal peptide activity.

27. (Currently amended) The polypeptide ~~variant of claim 25~~ having greater than ~~50%~~ 45% sequence identity to SEQ ID NO:2 ~~or SEQ ID NO:4~~ and having *S.mutans* competence signal peptide activity.

28. (Currently amended) The polypeptide ~~variant~~ of claim 25, isolated from *S.mutans*.

29-37. (Canceled).

38. (Currently amended) The polypeptide of claim ~~24-58~~ having an amino acid sequence wherein 1 - 15 amino acids ~~of the polypeptide of claim 24~~ have been removed from the N- and/or

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COOH terminal of SEQ ID NO: 2 ~~or SEQ ID NO: 4~~, and having *S. mutans* competence signal peptide activity.

39. (Currently amended) The polypeptide of claim 38 having an amino acid sequence wherein 2 - 5 amino acids have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 ~~or SEQ ID NO: 4~~, and having *S. mutans* competence signal peptide activity.

40. (Currently amended) The polypeptide of claim 38 wherein 6 - 10 amino acids have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 ~~or SEQ ID NO: 4~~, and having *S. mutans* competence signal peptide activity.

41. (Currently amended) The polypeptide of claim 38 wherein 10 - 15 amino acids ~~of the polypeptide of claim 24~~ have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 ~~or SEQ ID NO: 4~~, and having *S. mutans* competence signal peptide activity.

42. (Currently amended) A synthetic polypeptide having competence signal peptide activity and comprising the 21-amino acid sequence of SEQ ID NO: 164.

43. (Currently amended) ~~A~~ An isolated polypeptide having an amino acid sequence wherein 1 - 15 amino acids ~~of the amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4~~ have been modified to include up to 1 point mutation per each 10 amino acids of said polypeptide, said mutation chosen from the group consisting of an amino acid substitution, a D-amino acid substituted for an L-amino acid, a chemically modified amino acid, an N-terminal amino acid addition, a COOH-terminal amino acid addition, an N-terminal amino acid deletion, and a COOH-terminal amino acid deletion, said polypeptide having *S. mutans* competence signal peptide activity.

44. (Previously presented) The polypeptide of claim 43 wherein each said mutation comprises substitution with another amino acid.

45. (Currently amended) The polypeptide ~~variant~~ of claim 25 having greater than 60% sequence identity to SEQ ID NO: 2, and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

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46. (Currently amended) The polypeptide ~~variant~~ of claim 45 having greater than 90% sequence identity to SEQ ID NO: 2, and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

47. (Currently amended) The polypeptide of claim 24 or ~~the polypeptide variant of claim 25~~ having competence signal peptide activity.

48. (Currently amended) The polypeptide of claim 24 ~~or the polypeptide variant of claim 25~~ having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

49. (Previously presented) The polypeptide of claim 47 capable of binding to a bacterial histidine kinase cell surface receptor and activating said kinase.

50. (Currently amended) The polypeptide of claim 47 capable of promoting biofilm formation of ~~said a~~ bacteria.

51. (Currently amended) The polypeptide of claim 47 capable of promoting acid tolerance in ~~said a~~ bacteria.

52. (Currently amended) The polypeptide of claim ~~47~~ 51 wherein said bacteria comprises *Streptococcus mutans*.

53. (Previously presented) The polypeptide of claim 48 capable of competitively inhibiting the binding of a peptide having SEQ ID NO. 4 to a bacterial histidine kinase cell surface receptor.

54. (Currently amended) The polypeptide of claim 48 capable of inhibiting biofilm formation of ~~said a~~ bacteria.

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55. (Currently amended) The polypeptide of claim 48 capable of inhibiting acid tolerance in said a bacteria.

56. (Currently amended) The polypeptide of claim ~~48~~55 wherein said bacteria comprises *Streptococcus mutans*.

57. (Canceled)

58. (New) An isolated polypeptide comprising a fragment of SEQ ID NO: 2 and having *S. mutans* competence signal peptide activity.

59. (New) The polypeptide of claim 58 comprising a fragment of SEQ ID NO:4 and having *S. mutans* competence signal peptide activity.

60. (New) An isolated polypeptide having at least 40% amino acid sequence identity to SEQ ID NO:4 and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

61. (New) The polypeptide of claim 60 having greater than 45% sequence identity to SEQ ID NO:4 and having *S.mutans* competence signal peptide activity

62. (New) The polypeptide of claim 58 having an amino acid sequence wherein 1 - 15 amino acids have been removed from the N- and/or COOH terminal of SEQ ID NO: 4, and having *S.mutans* competence signal peptide activity.

63. (New) The polypeptide of claim 58 having an amino acid sequence wherein 2 - 5 amino acids have been removed from the N- and/or COOH terminal of SEQ ID NO: 4, and having *S.mutans* competence signal peptide activity.

64. (New) The polypeptide of claim 58 wherein 6 - 10 amino acids have been removed from the N- and/or COOH terminal of SEQ ID NO:4, and having *S.mutans* competence signal peptide activity.

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65. (New) The polypeptide of claim 58 wherein 10 - 15 amino acids ~~of the polypeptide of claim 24~~ have been removed from the N- and/or COOH terminal of SEQ ID NO:4, and having *S.mutans* competence signal peptide activity.

66. (New) An isolated polypeptide having an amino acid sequence wherein 1 - 15 amino acids of the amino acid sequence of SEQ ID NO:4 have been modified to include up to 1 point mutation per each 10 amino acids of said polypeptide, said mutation chosen from the group consisting of an amino acid substitution, a D-amino acid substituted for an L-amino acid, a chemically modified amino acid, an N-terminal amino acid addition, a COOH-terminal amino acid addition, an N-terminal amino acid deletion, and a COOH-terminal amino acid deletion, said polypeptide having *S. mutans* competence signal peptide activity.

67. (New) The polypeptide of claim 25 having greater than 60% sequence identity to SEQ ID NO: 4, and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

68. (New) The polypeptide of claim 45 having greater than 90% sequence identity to SEQ ID NO: 4, and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.